

## 4. GENERAL PROTECTION/COLLECTION STRATEGIES

### 4.1. Chapter Overview

This chapter details the specific response strategies and resources to protect as outlined by the participants of the GRP workshop for the Grays Harbor area. It describes the strategies determined for each area and the prioritization of those strategies. Note that GRPs only address protection of sensitive **public** resources. It is the responsibility of private resource owners and/or potentially liable parties to address protection of private resources (such as commercial marinas, private water intakes, and non-release aquaculture facilities).

### Maps & Matrices

The maps in this chapter provide information on the specific location of booming strategies. They are designed to help the responder visualize response strategies. Details of each booming strategy are listed in corresponding matrix tables. Each matrix indicates the exact location, intent and implementation of the strategy indicated on the map. The "Status" column describes whether the strategy has been visited or tested in the field, and the date of the visit/test. Most strategies include a number for the corresponding shoreline photo, which is available on the Washington Department of Ecology's internet site at <http://www.ecy.wa.gov/apps/shorephotos/>.

### Major Protection Techniques

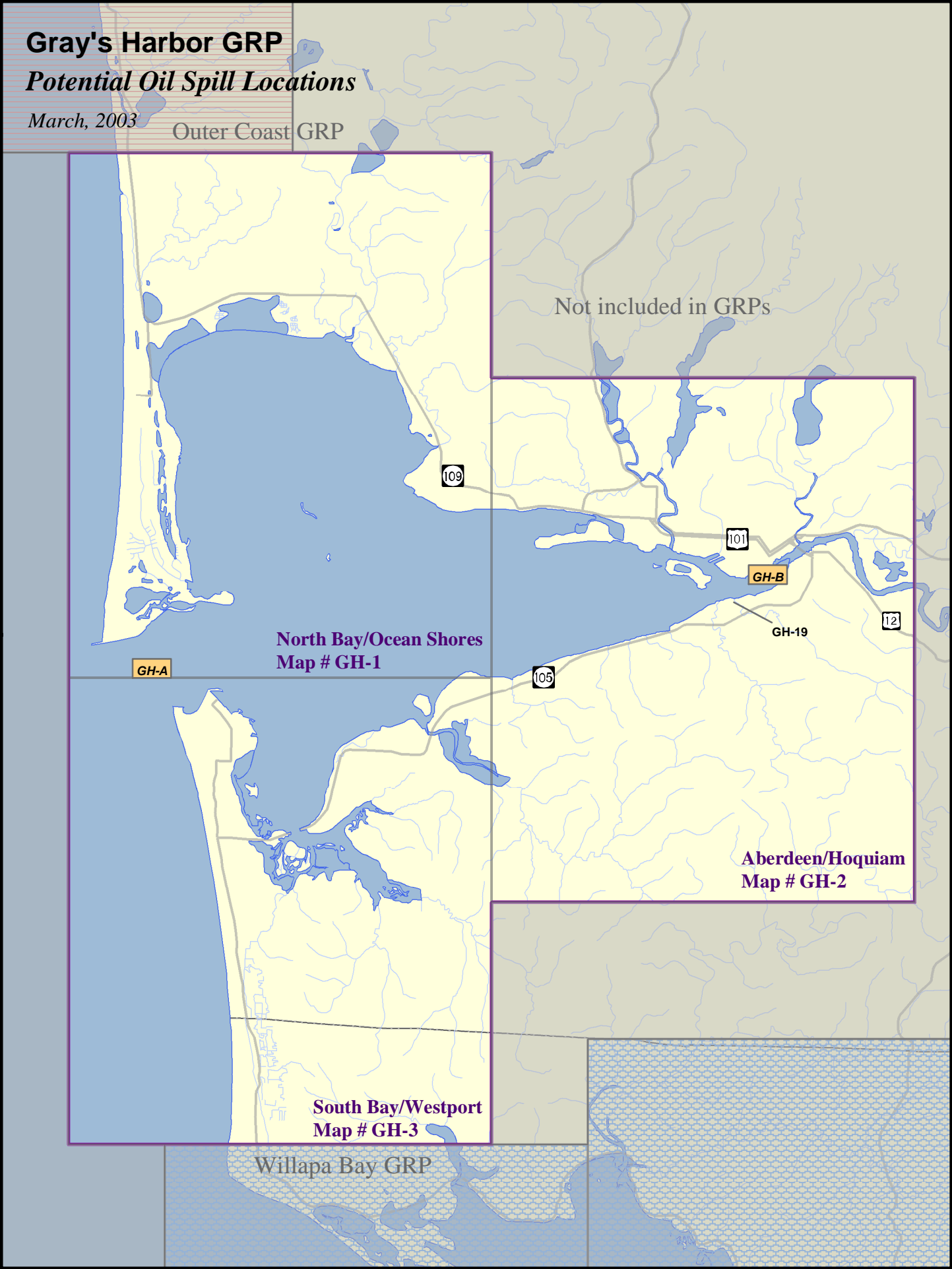
**All** response strategies fall into one of three major techniques that may be utilized either individually or in combination. The strategies listed in Section 4.2 are based on the following techniques, and are explained in detail in Section 4.3:

**Dispersants:** Washington State Policy currently does not allow use of dispersants in this area. Certain chemicals break up slicks on the water. Dispersants can decrease the severity of a spill by speeding the dissipation of certain oil types. Their use will require approval of the Unified Command. Dispersants will only be used in offshore situations under certain conditions, until further determinations are made by the Area Committee and published in the Area Contingency Plan.

**In Situ Burning:** Approval to burn in this area is unlikely due to the proximity of population to a potential burn site. Burning requires the authorization of the Unified Command, who determine conformance of a request to burn with the guidelines set forth in the Area Plan. This option is preferable to allowing a slick to reach the shore provided that population areas are not exposed to excessive smoke. Under the right atmospheric conditions, a burn can be safely conducted in relative close proximity to human population. This method works on many types of oil, and requires special equipment including a fire boom and igniters.

**Mechanical Recovery and Protection Strategies:** If a spill is too close to shore to use In Situ burning or dispersants, the key strategies are skimming and use of collection, diversion, or exclusion booming to contain and recover the oil, and prevent it from entering areas with sensitive wildlife and fisheries resources. These options are described in detail in Appendix A. Specific skimming strategies are not listed in the maps and matrices, but skimming should be used whenever possible and is often the primary means of recovering oil and protecting resources, especially when booming is not possible or feasible.

**Priorities:** The strategy priority tables (Section 4.2.) were developed using specific locations where spills are likely to occur. Trajectory modeling was used for each of these "Potential Spill Origins" to identify sensitive resources that would likely be impacted within the initial hours of the spill. A booming strategy priority table was developed for each of the "Potential Spill Origins" based on the sensitivity of resources, feasibility, etc. **Booming strategies should be deployed following the priority table for the "Potential Spill Origin" closest to the actual spill origin.** The map on page 4-2 shows the locations of all Potential Spill Origins for the Grays Harbor GRP. The booming strategies indicated in the priority tables are explained in detail in the Maps & Matrices section (Section 4.3.). It is implied that control and containment at the source is the number one priority of any response. If in the responder's best judgment this is not feasible, then the priorities laid out in the priority tables take precedence over containment and control.



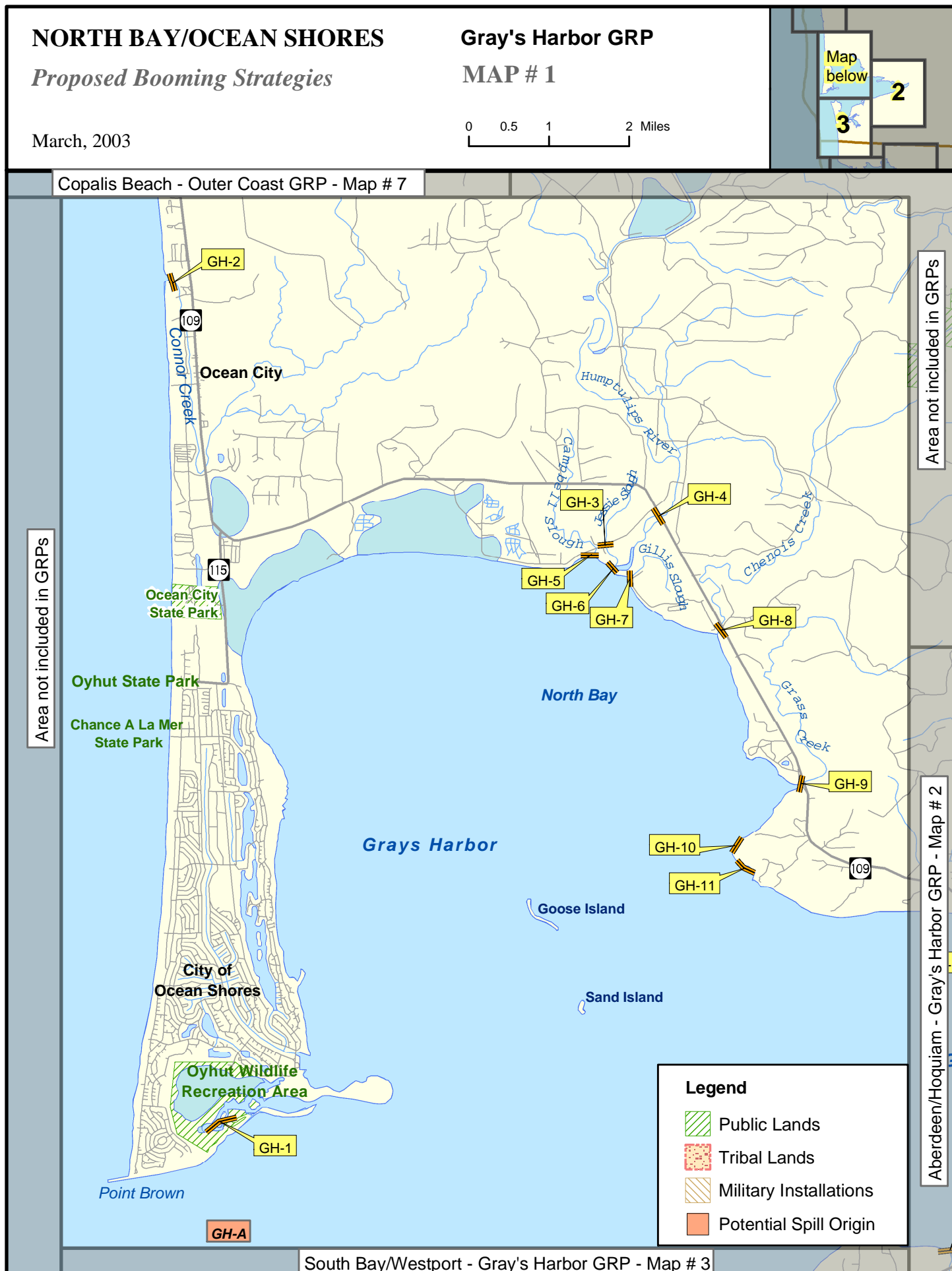
#### 4.2.2 Booming Strategy Priority Tables

Table 4-1

<b>Potential Spill Origin: GH-A - Oil entering Grays Harbor on a flood tide from source outside of bay</b>			
BOOMING PRIORITY	STRATEGY NUMBER	MAP PAGE NUMBER	COMMENTS
1	GH-12	4-6	
2	GH-1	4-5	
3	GH-31	4-7	Tide Gate
4	GH-29	4-7	
5	GH-30	4-7	
6	GH-27	4-7	
7	GH-28	4-7	
8	GH-9	4-5	
9	GH-10	4-5	
10	GH-11	4-5	
11	GH-7	4-5	
12	GH-6	4-5	
13	GH-5	4-5	
14	GH-3	4-5	
15	GH-4	4-5	High water strategy
16	GH-8	4-5	
17	GH-14	4-6	
18	GH-13	4-6	

Table 4-2

<b>Potential Spill Origin: GH-B - Oil entering Grays Harbor on an ebb tide from a source in the Chehalis River</b>			
BOOMING PRIORITY	STRATEGY NUMBER	MAP PAGE NUMBER	COMMENTS
1	GH-16		As needed to contain/control source
2	GH-17		As needed to contain/control source
3	GH-14		As needed to contain/control source
4	GH-15		
5	GH-12		
6	GH-1		
7	GH-19		
8	GH-18		
9	GH-21		
10	GH-20		
11	GH-22		
12	GH-23		
13	GH-24		
14	GH-25		
15	GH-26		



# ABERDEEN/HOQUIAM

## *Proposed Booming Strategies*

March, 2003

## Gray's Harbor GRP

### MAP # 2

0 0.5 1 2 Miles



Area not included in GRPs

North Bay/Ocean Shores - Gray's Harbor GRP - Map # 1

South Bay/Westport - Gray's Harbor GRP - Map # 3

Area not included in GRPs



Area not included in GRPs

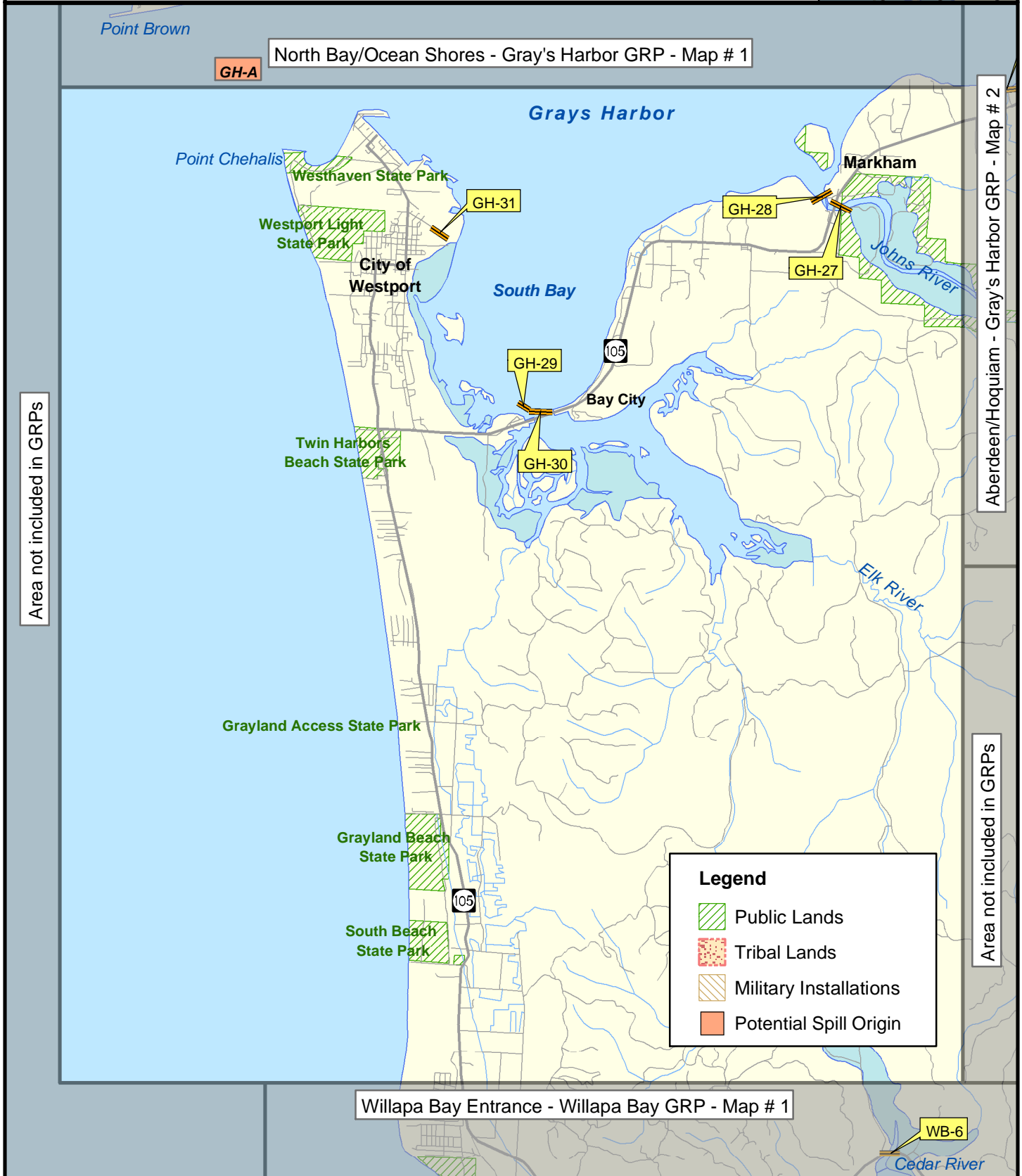
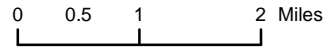
# SOUTH BAY/WESTPORT

## *Proposed Booming Strategies*

March, 2003

### Gray's Harbor GRP

#### MAP # 3



**4.3.2 Proposed Booming and Collection Strategies: Matrices**

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
GH-1		Ohyut Sink GRA0157 46°-56.405'N 124°-08.684'W	Exclusion - Keep oil out of salt marsh.	2000'	Install boom across entrance to marsh. Sand spits at entrance are dynamic, and the position of the entrance is likely to change, which may require more boom than what is listed here. Winter storms will impact the site.	Stage at Ocean Shores Marina parking lot.	Drive from Hoquium to Ocean Shores. Marina is at the south end of town.	Marshes, shorebirds, waterfowl.
GH-2		Conner Creek GRA0111 47°-05.590'N 124°-10.425'W	Exclusion - Keep oil out of Conner Creek.	400'	Deploy boom at an angle across the creek from the NW to the SE such that oil is recovered on the SE side.	Area south of Pacific Lane. Area can support large equipment. Permission would have to be obtained from owner/trustee.	1.2 mile north of Ocean City on 109, turn left on Pacific Ln into Sea View Estates. At the intersection of Ocean St. & Pacific Ln is a solid, unimproved road to Conner Creek.	Coho salmon, shorebirds.
GH-3		Humptulips River (Jessie Slough) 47°-02.627'N 124°-03.594'W	Exclusion - Keep oil from moving up Jessie Slough.	200'	Install boom across slough at Burrows Road crossing.	Stage at Burrows Road and Jessie Slough Crossing.	Deploy from bridge.	Salmon, steelhead, waterfowl and wetlands.
GH-4		Humptulips River 47°-03'N 124°-02.5'W	Exclusion - Keep oil from moving up Humptulips River. This is a high water strategy.	200'	Install boom across river at Hwy 109 crossing.	Stage at Hwy 109 and Humptulips River.	Deploy from bridge.	Salmon, steelhead, waterfowl and wetlands.
GH-5		Campbell Slough GRA0203 47°-02.717'N 124°-03.430'W	Exclusion - Keep oil from moving up Campbell Slough.	300'	Install boom across mouth of slough, south of Hwy 109. Use small work boat. Consider affects of high & low tide during deployment.	Stage at Hwy 109 and Jessie Slough Crossing.	Use work boat to float down river to deployment sites.	Salmon, steelhead, waterfowl and wetlands.



**4.3.2 Proposed Booming and Collection Strategies: Matrices**

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
GH-6		Humptulips River and Jessie Slough GRA0204 47°-02.426'N 124°-03.249'W	Exclusion - Keep oil from moving up Humptulips River. Normal river flows during Oct - June will stop oil moving upstream.	1000'	Install boom across mouth of river, south of Hwy 109. Use small work boat.	Stage at Hwy 109 and Humptulips River.	Use work boat to float down river to deployment sites.	Salmon, steelhead, waterfowl and wetlands.
GH-7		Gillis Slough GRA0205 47°-02.411'N 124°-02.915'W	Exclusion - Keep oil from moving up Gillis Slough.	500'	Install boom across mouth of slough, south of Hwy 109. Use small work boat.	Stage at Hwy 109 and Humptulips River.	Use work boat to float down river to deployment sites.	Salmon, steelhead, waterfowl and wetlands.
GH-8		Chenois Creek GRA0208 47°-01.851'N 124°-01.559'W	Exclusion - Keep oil from moving up Chenois Creek.	300'	Install boom across creek west of Hwy 109 bridge. Deploy from bank.	Stage at Chenois Creek/Hwy 109 bridge crossing.	Take Hwy 109 west from Hoquiam to Chenois Creek.	Salmon, steelhead, waterfowl and wetlands.
GH-9		Grass Creek GRA0219 47°-0.25'N 124°-0.25'W	Exclusion - Keep oil from moving up Grass Creek.	200'	Install boom across mouth of creek just west of railroad bridge.	Stage at Grass Creek.	Take Hwy 109 west from Hoquiam to Grass Creek.	Sensitive nesting sites, waterfowl, shorebirds, marshes and wetlands.
GH-10		Point New Salt Marsh GRA0223 46°-59.263'N 124°-0.836'W	Exclusion - Keep oil from moving into Salt Marshes.	300'	Install booms across entrance to salt marshes. Helicopter deployment is required at low water.	Stage at Grass Creek.	Take Hwy 109 west from Hoquiam to Grass Creek.	Sensitive nesting sites, waterfowl, shorebirds, marshes and wetlands.
GH-11		Point New Salt Marsh GRA0224 46°-59.518'N 124°-01.150'W	Exclusion - Keep oil from moving into Salt Marshes.	1000'	Install booms across entrance to salt marshes. Helicopter deployment is required at low water.	Stage at Grass Creek.	Take Hwy 109 west from Hoquiam to Grass Creek.	Sensitive nesting sites, waterfowl, shorebirds, marshes and wetlands.

**4.3.2 Proposed Booming and Collection Strategies: Matrices**

<b>Strategy</b>	<b>Status</b>	<b>Location</b>	<b>Response Strategy</b>	<b>Length of Boom</b>	<b>Strategy Implementation</b>	<b>Staging Area</b>	<b>Site Access</b>	<b>Resources Protected</b>
GH-12		Bowerman Basin GRA0243 46°-58.374'N 123°-56.896'W	Exclusion - Keep oil out of inner Bowerman Basin.	4000'	Install boom across basin on west side of piles. Booms must be installed at half tide (either ebb or flood). Piles are not exposed at high tide, and the basin goes dry at low tide.	Stage at west end of Bowerman Airport.	Drive to Hoquiam then to Bowerman Airport.	Sensitive nesting sites, waterfowl, shorebirds, marshes and wetlands.
GH-13		Hoquiam River GRA0251 46°-58.299'N 123°-52.658'W	Exclusion/ Collection - Keep oil from moving up Hoquiam River.	800'	Install boom at angle across river just above mouth for collection on east shore.	Stage from paper mill site on east side of river.	From Aberdeen, drive west to Hoquiam. The paper mill is just east of river mouth.	Salmon, steelhead, waterfowl and wetlands.
GH-14		Chehalis River GRA0263 46°-58.193'N 123°-48.469'W	Exclusion/ Diversion/ Collection - Keep oil from moving up Chehalis River.	2000'	Install boom at 45-60 deg. angle across river for collection on the south shore.	Stage at marina just west of lumber mill in South Aberdeen.	In south Aberdeen - use marina just west of mill.	Salmon, steelhead, waterfowl and wetlands.
GH-15		Wishkah River GRA0263 46°-58.471'N 123°-48.626'W	Exclusion - Keep oil from moving up Wishkah River.	500'	Install boom across river near mouth.	Stage at marina just west of lumber mill in South Aberdeen.	In south Aberdeen - use marina just west of mill.	Salmon.
GH-16		Chehalis River 46°-58.608'N 123°-47.278'W	Exclusion/ Diversion/ Collection - Keep oil from moving up Chehalis River.	1000'	Install boom at 45 deg. angle to shoreline for collection on the south shore.	Stage at marina just west of lumber mill in South Aberdeen.	In south Aberdeen - use marina just west of mill.	Salmon, steelhead, waterfowl, shorebirds, marshes and wetlands.
GH-17		Chehalis River 46°-57.428'N 123°-45.692'W	Exclusion/ Diversion/ Collection - Keep oil from moving up Chehalis River.	1500'	Install boom at 45 deg. angle to shoreline for collection on the south shore.	Stage at Weyerhaeuser mill in Cosmopolis.	Drive east from Aberdeen to Cosmopolis on Hwy 101. The Weyerhaeuser mill is at east end of town.	Salmon, steelhead, waterfowl, shorebirds, marshes and wetlands.

**4.3.2 Proposed Booming and Collection Strategies: Matrices**

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
GH-18		Charley Creek GRA0280 46°-57.167'N 123°-50.568'W	Exclusion - Keep oil from moving up Charley Creek.	100'	Install boom near creek mouth (north of old railroad bridge).	Stage at Site.	Take Hwy 105 out of Aberdeen to Port of Grays Harbor dike access road & follow to site.	Wetlands, sea run cutthroat, salmon, waterfowl.
GH-19		Charley Creek GRA0280 46°-57.116'N 123°-50.560'W	Exclusion - Keep oil from moving up Charley Creek.	100'	Install boom on north side of old railroad bridge.	Stage at Site.	Take Hwy 105 out of Aberdeen to Port of Grays Harbor dike access road & follow to site.	Wetlands, sea run cutthroat, salmon, waterfowl.
GH-20		Newskah Creek GRA0281 46°-57.097'N 123°-51.043'W	Exclusion - Keep oil from moving up Newskah Creek.	100'	Install boom across creek mouth (north of old railroad bridge).	Stage at Charley Creek Site (near GH-19).	Take Hwy 105 out of Aberdeen to Port of Grays Harbor dike access road & follow to near GH-19 site. Then follow old railroad bed to site.	Wetlands, sea run cutthroat, salmon, waterfowl.
GH-21		Newskah Creek GRA0281 46°-57.004'N 123°-51.109'W	Exclusion - Keep oil from moving up Newskah Creek.	100'	Install boom on north side of old railroad bridge.	Stage at Charley Creek Site (near GH-19).	Take Hwy 105 out of Aberdeen to Port of Grays Harbor dike access road & follow to near GH-19 site. Then follow old railroad bed to site.	Wetlands, sea run cutthroat, salmon, waterfowl.
GH-22		Chapin Creek GRA0286 46°-56.422'N 123°-52.655'W	Exclusion - Keep oil from moving up Chapin Creek.	100'	Install boom across creek mouth (north of old railroad bridge).	Park near site off of Hwy 105.	Take Hwy 105 out of Aberdeen to Chapin Creek. Will need GPS & good road map to find site.	Wetlands, sea run cutthroat, salmon, waterfowl.

**4.3.2 Proposed Booming and Collection Strategies: Matrices**

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
GH-23		Campbell Creek GRA0287 46°-56.295'N 123°-53.274'W	Exclusion - Keep oil from moving up Campbell Creek.	100'	Install boom across creek mouth (north of old railroad bridge).	Park near site off of Hwy 105.	Take Hwy 105 out of Aberdeen to Campbell Creek. Will need GPS & good road map to find site.	Wetlands, sea run cutthroat, salmon, waterfowl.
GH-24		Indian Creek GRA0289 46°-56.166'N 123°-53.844'W	Exclusion - Keep oil from moving up Indian Creek.	100'	Install boom across creek mouth (north of old railroad bridge).	Park near site off of Hwy 105.	Take Hwy 105 out of Aberdeen to Indian Creek. Will need GPS & good road map to find site.	Wetlands, sea run cutthroat, salmon, waterfowl.
GH-25		Stafford Creek GRA0290 46°-56.030'N 123°-54.490'W	Exclusion - Keep oil from moving up Stafford Creek.	100'	Install boom across creek mouth (north of old railroad bridge).	Park near site off of Hwy 105.	Take Hwy 105 out of Aberdeen - site is near Stafford Creek Prison.	Wetlands, sea run cutthroat, salmon, waterfowl.
GH-26		O'Leary Creek GRA0298 46°-55.258'N 122°-57.468'W	Exclusion - Keep oil from moving up O'Leary Creek.	100'	Install boom across creek mouth (north of old railroad bridge).	Stage near boom site by taking private road.	Take Hwy 105 out of Aberdeen to O'Leary Creek turn right on private road at creek.	Wetlands, sea run cutthroat, salmon, waterfowl.
GH-27	Field tested 1992	Johns River GRA0308 46°-54.065'N 124°-00.085'W	Exclusion - Keep oil from moving up Johns River.	600'	Install boom across river.	Boat ramp at private oyster company on north side of river before crossing Markham Bridge.	Drive from Aberdeen to Markham (Hwy 105) turn right into oyster business just before crossing bridge.	Salt Marsh, shorebirds, waterfowl, salmon.
GH-28		Johns River GRA0309 46°-54.015'N 123°-59.610'W	Exclusion/ Collection - Keep oil from moving up Johns River.	1000'	Install boom at angle from boat launch site on south shore to north end of bridge, collect oil at boat launch.	Boat ramp on south side of river.	Drive from Aberdeen to Markham (Hwy 105) cross bridge to launch ramp site.	Salt Marsh, shorebirds, waterfowl, salmon.

**4.3.2 Proposed Booming and Collection Strategies: Matrices**

<b>Strategy</b>	<b>Status</b>	<b>Location</b>	<b>Response Strategy</b>	<b>Length of Boom</b>	<b>Strategy Implementation</b>	<b>Staging Area</b>	<b>Site Access</b>	<b>Resources Protected</b>
GH-29		Elk River GRA0373 46°-51.801'N 124°-04.385'W	Diversion - Divert oil from shoreline to GH-30 for collection.	600'	Install boom using a small boat. Strong currents may make installation difficult.	Stage at Brady's Oysters, has a private ramp.	Drive from Aberdeen on Hwy 105 to Bay City bridge. Follow signs to Brady's Oysters.	Large saltmarsh, waterfowl, shorebirds, etc.
GH-30		Elk River GRA0326 46°-51.928'N 124°-04.576'W	Exclusion/ Collection - Keep oil from moving up Elk River.	1500'	Install boom at angle using small boat to collect oil at east side of bridge. Strong currents may make installation difficult.	Stage at Brady's Oysters, has a private ramp.	Drive from Aberdeen on Hwy 105 to Bay City bridge. Follow signs to Brady's Oysters.	Large saltmarsh, waterfowl, shorebirds, etc.
GH-31		Tide Gate @ Westport GRA0385 46°-53.5'N 124°-06.0'W	Exclusion - Keep oil from moving up drainage.	100'	Close tide gate, or install boom across drainage.	Stage along road at tide gate.	Take Highway 105 from Aberdeen to Westport. Go east on Pacific Ave. in Westport to site.	Shorebirds, waterfowl, saltmarsh.